

Attorney Docket No. 056267-0003

Application No. 09/834,672

25. (Amended) A modular construction system comprising:

an inventory of panel shapes that are directly related to each other by virtue of the panel shapes derivation from a common format, the format being a three-dimensional grid defined by twenty-seven subcubes within a single larger cube, the subcubes having corners that form sixty-four vertices occurring within the grid, from each of which, straight line radians are drawn to each of the other sixty-three vertices, upon repeating for all sixty-four vertices, revealing fifty-nine panel shapes that are defined within the grid format, the panel shapes forming panels having a plurality of sides;

wherein single line radians between any two vertices are axes between the vertices and are aligned with panel centerlines that are parallel and equidistant to the sides of the panels of the inventory of panel shapes being joined;

a means of constructing a structure from the inventory of panel shapes on an architectural scale that allows for a plurality of panels to be connected at a plurality of angles, with respect to each other, about a given axis parallel to the panel sides about which at least two panels are joined, or about a given vertice, where the axes between the sides of the panels being joined intersect, the plurality of panels including structural, load bearing struts attached along the panel sides which can converge on the given vertice and in any direction;

wherein the strut provides a panel shape framework forming the perimeter of the panel to carry the weight of the panel and allow connection to other panels, and

wherein the struts are offset from the axis between the two vertices and are joined to a common tubular element by means of webs and brackets that are attached to the struts for joining at least two panels together.

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Please cancel claims 26-29.

30. (Amended) A modular construction system comprising:
an inventory of panel shapes derived from a three-dimensional grid defined by twenty-seven subcubes within a single larger cube, the panel shapes forming a plurality of panels having a plurality of sides thereto;

a means for connecting a plurality of panels together at any angle through 360 degrees about any axis between vertices and at any dihedral angle with respect to each other for building architectural structures;

wherein the plurality of panels include struts attached along the sides of each of the panels forming the perimeter of the panels and panel shape framework to carry the weight of the panels and allow connection to other panels;

wherein the means for connecting the plurality of panels together includes at least one joinery assembly; and

further comprising a first joinery assembly that includes at least one web attached to the struts of at least two panels, at least one collar having an opening extending therethrough and at least one tab extension extending from one side of the collar that attaches to the at least one web with fasteners, and a tubular element that extends through the opening in the at least one collar for connecting a plurality of panels together.

31. (Amended) A modular construction system comprising:
an inventory of panel shapes derived from a three-dimensional grid defined by twenty-seven subcubes within a single larger cube, the panel shapes forming a plurality of panels having a plurality of sides thereto;

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a means for connecting a plurality of panels together at any angle through 360 degrees about any axis between vertices and at any dihedral angle with respect to each other for building architectural structures;

wherein the plurality of panels include struts attached along the sides of each of the panels forming the perimeter of the panels and panel shape framework to carry the weight of the panels and allow connection to other panels;

wherein the means for connecting the plurality of panels together includes at least one joinery assembly; and

further comprising a first joinery assembly that includes at least one web attached to the struts of at least two panels, at least one collar having an opening extending therethrough and at least one tab extension extending from one side of the collar that attaches to the at least one web with fasteners, and a tubular element that extends through the opening in the at least one collar for connecting a plurality of panels together; and

wherein the first joinery assembly further includes joint closures for covering the space between the struts and bracing elements for securing the panels in place.

32. (Amended) A modular construction system comprising:

an inventory of panel shapes derived from a three-dimensional grid defined by twenty-seven subcubes within a single larger cube, the panel shapes forming a plurality of panels having a plurality of sides thereto;

a means for connecting a plurality of panels together at any angle through 360 degrees about any axis between vertices and at any dihedral angle with respect to each other for building architectural structures;

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wherein the plurality of panels include struts attached along the sides of each of the panels forming the perimeter of the panels and panel shape framework to carry the weight of the panels and allow connection to other panels;

wherein the means for connecting the plurality of panels together includes at least one joinery assembly;

further comprising a first joinery assembly that includes at least one web attached to the struts of at least two panels, at least one collar having an opening extending therethrough and at least one tab extension extending from one side of the collar that attaches to the at least one web with fasteners, and a tubular element that extends through the opening in the at least one collar for connecting a plurality of panels together; and

further comprising a second joinery assembly that includes at least one bracket attached to the struts of at least two panels, the at least one bracket having an opening extending therethrough, and a tubular element that extends through the opening in the at least one bracket for connecting a plurality of panels together.

33. (Amended) A modular construction system comprising:

an inventory of panel shapes derived from a three-dimensional grid defined by twenty-seven subcubes within a single larger cube, the panel shapes forming a plurality of panels having a plurality of sides thereto;

a means for connecting a plurality of panels together at any angle through 360 degrees about any axis between vertices and at any dihedral angle with respect to each other for building architectural structures;

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wherein the plurality of panels include struts attached along the sides of each of the panels forming the perimeter of the panels and panel shape framework to carry the weight of the panels and allow connection to other panels;

wherein the means for connecting the plurality of panels together includes at least one joinery assembly;

further comprising a first joinery assembly that includes at least one web attached to the struts of at least two panels, at least one collar having an opening extending therethrough and at least one tab extension extending from one side of the collar that attaches to the at least one web with fasteners, and a tubular element that extends through the opening in the at least one collar for connecting a plurality of panels together;

wherein the first joinery assembly further includes joint closures for covering the space between the struts and bracing elements for securing the panels in place;

further comprising a second joinery assembly that includes at least one bracket attached to the struts of at least two panels, the at least one bracket having an opening extending therethrough, and a tubular element that extends through the opening in the at least one bracket for connecting a plurality of panels together; and

wherein the second joinery assembly further includes joint closures for covering the space between the struts and bracing elements for securing the panels in place.

Please add claims 34-45 as follows:

34. A modular construction system comprising:

an inventory of panel shapes that are directly related to each other by virtue of their derivation from a common format, which format reveals 59 panel shapes, which shapes form

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panels having three and four sides, the majority of which three-sided panels, called triangles, are asymmetrical, with sides of unequal length, and which the majority of four-sided panels, parallelograms, have parallel sides that are of incrementally variable lengths and width and which panel shapes vary in thickness up to and including intended, required thickness for architectural applications as walls;

wherein the panel shapes of this common format are defined by single line radians, called axes, that are aligned with the centerlines of the panels to which they are parallel and equidistant; and

the intersections of which radians constitute vertices which define the centermost point between and equidistant from the corners of panels being joined, and

a means of constructing a structure from the inventory of panel shapes on an architectural building scale that allows for a plurality of panels to be connected at a plurality of dihedral angles with respect to each other about a given axis parallel to the panel sides about which two or more panels are joined, or

about a given vertice, where the axes of panels being joined intersect, the plurality of panels including structural, load bearing struts along the panel sides which can converge on a given vertice from any direction and direction combinations; and

wherein the strut provides a panel shape framework forming the perimeter of the panel to carry the weight of the panel and allow connection to other panels.

35. The modular construction system of claim 34 which inventory of panel shapes may be combined so as to form 108 simple polygons, the majority of which are asymmetrical, with various edges of unequal lengths producing sides of varying sizes and shapes.

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36. The modular construction system of claim 34, wherein the struts are offset from, parallel to, and rotational about any given axis between vertices, providing for varying numbers of struts that may occur simultaneously along any given axis between vertices, and positioned in a plurality of angles and dihedral angle combinations with respect to each other.

37. The modular construction system of claim 34, further comprising at least two connection mechanisms capable of joining more than two panels in multiple combinations about any given axis or vertice, which connection mechanisms consist of several independent components, including a centerline element, bridge elements, brace elements, anchorage elements and joint closure elements, which together serve to facilitate the plurality of joinery options between panel side struts.

38. The modular construction system of claim 37, wherein the connection mechanisms include the centerline element which consists of tubular segments that are centered exactly on the centerline of the axis between any two given vertices, which in turn, is centered exactly on the longitudinal centerline of two or more panels, to which the tubular elements are linked, and which by virtue of the tubular design provide for the passage of wires, cables and similar utilities, unimpeded, throughout a building structure or construction composition.

39. The modular construction system of claim 37, wherein the plurality of panels include struts attached along the sides of each of the panels, forming the perimeter of the panels and panel framework, to carry the weight of the panels and allow for connection to other panels.

40. The modular construction system of claim 37, wherein comprising two connection mechanisms distinguished by two bridge elements, webs and brackets, which serve to bridge

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between and link the tubular centerline element to the struts defining the sides of panels, and through which common centerline element the webs and brackets effect the joinery between a plurality of panels about a common axis.

41. The modular construction system of claim 40, wherein comprising two connection mechanisms which bridge elements, webs and brackets, serve to establish and maintain a clear opening, a measurable distance, between the tubular centerline element and panel strut sides and in turn between the sides of a plurality of panels being joined about a common axis, which distance, times the thickness of panels, produces a cavity throughout the joint assembly between panels being joined, useful for the insertion of various utility lines throughout a given structure.

42. The modular construction system of claim 37, wherein the bridge element of the first of two connection mechanisms, the web, is attached to the tubular centerline element by means of at least one independent anchorage element, the collar, an open ended cylinder with at least one tab extension, which forms a sleeve around the tubular centerline element and which tab extension is attached by conventional means to the web which, being a fixed extension of the strut, makes the linkage between the strut and the tubular centerline element, thus effecting the connection of a plurality of panels being joined, at the corner condition, about the vertice common to the plurality of panels being joined.

43. The modular construction system of claim 42, wherein the first joinery assembly includes joint closures for covering the space between the struts so as to provide a finish and additional bracing to the joint assembly between a plurality of panels at the corner condition about a common vertice.

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44. The modular construction system of claim 37, wherein the second bridge element of the two connection mechanisms consists of brackets, at least one of which occurs along the struts defining panel sides to which they are anchored with conventional fasteners and along which, being adjustable, they may be repositioned so that by virtue of a circular opening in the bracket, permits a single tubular centerline element to pass through a plurality of brackets, of at least one stemming from each strut-panel side, of a plurality of panels being joined about a given axis, which upon anchoring the brackets to each other by conventional means completes the linkage of a plurality of panels to each other about their common axis in addition to fixing, rendering unchangeable, the plurality of dihedral angles between the panels so joined about a given axis.

45. The modular construction system of claim 44, wherein the second joinery assembly further includes joint closures for covering the space between the struts so as to provide a finish and additional bracing to the joint assembly between a plurality of panels along panel sides about a common axis.

46. The modular construction system of claim 34, wherein, by virtue of struts being offset from the axis between the two vertices and joined to a common tubular centerline element by means of webs and brackets, provides for at least two panels to anchor to, and alternate with, typical strut-node space frame systems and conventional construction materials and methods.

REMARKS

Claims 19-33 are pending in the application. This amendment cancels claims 19-24 and 26-29, amends claims 25, 30, 31, 32 and 33, and adds new claims 34-46. In view of the cancellation of claims 19 and 20, the Examiner's rejection of these claims under 35 U.S.C. § 112,